**Serological update of the chikungunya epidemic outbreak in Italy**

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*Background:* Chikungunya (CHIKV) is an arthropod-borne virus belonging to the *Alphavirus* genus in the *Togaviridae* family. Epidemic Chikungunya virus (CIKV) infections result common limited to several countries of the tropical areas. The only epidemic of CHIKV that aroused outside the tropical areas was the small epidemic outbreak occurred in the Emilia Romagna region, Italy, during summer of 2007. Local transmission has been made possible by the enormous population of *Aedes albopictus*. On the basis of these facts, a serological screening of chikungunya fever was initiated by Centro Riferimento Regionale Emergenze Microbiologiche (CRREM) of Bologna to determine the specific CHIKV IgG and IgM titres in confirmed CHIKV case.

*Methods:* Serum obtained from the 172 CHIKV infected persons were collected and tested for the presence of CHIKV antibodies. Specific antibodies titres were analyzed by an indirect immunofluorescence assay for the detection of anti-CHIKV IgG and IgM by using a commercial EUROIMMUN assay.

*Results:* During the outbreak occurred in Emilia-Romagna on 2007, all serum from laboratory confirmed CHIKV infections were collected and tested as follows. Of these samples, 108 (62,8%) were CHIKV positive both in IgM and IgG, 27 (15,6%) were only IgM positive, 12 (6.9%) were IgG positive only. In opposite, 25 (14,5%) were negative both for IgM and IgG, but tested PCR positive. Moreover the 71,4% of the IgM positive samples had a titre comprised between 1/100 and 1/1600. In addition the 85,8% of the IgG positive samples had a titre ranging from 1/100 to 1/6400.

*Conclusion:* Here we report the first sero-prevalence study for specific CHIKV-antibodies in a population outside the tropical geographic areas. In addition, this study was performed on all the autochthonous CHIKV infected persons. The results obtained clearly demonstrated the high level of antibody response to CHIKV in the acute phase, or immediately after, infection. Studies are presently on going in order to define the persistence of CHIKV specific antibodies.

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**Sero-prevalence of West Nile virus in north-eastern Italy**

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*Background:* West Nile virus (WNV) is a member of the flavivirus family and is transmitted in natural cycles between birds and mosquitoes, particularly *Culex* spp. Human and horses are susceptible but dead-end hosts. Firstly identified in tropical Africa, WNV infection has been evidenced in northern Africa, Israel, India and Australia. WNV spread in America since 1999 and has been the cause of outbreaks and sporadic cases in central eastern and Mediterranean Europe for more than 45 years. Of people infected with mosquito-borne WNV, 80% develop asymptomatic infections, 20% develop symptomatic infections and <1% develop severe neuro-invasive disease. The first human cases of neuro-invasive WNV infection was identified in 2008 near Ferrara province where had been identified several WNV-positive horses and birds. After this first case of WNV infection in Emilia-Romagna, a sero-epidemiological survey was started to ascertain the sero-prevalence of specific antibodies in the blood donor population and the relative risk in population.

*Methods:* Serum obtained from 10.000 blood donors resident in Ferrara province were collected between September 2008 to April 2009, and tested for specific WNV. Virus-specific IgG were detected in serum specimens by enzyme-linked immunosorbent assay (ELISA). To confirm results of positive IgG samples and to determine the effectively titers in the serum, an Immuno Fluorescent assay (IFA) was performed.

*Results:* Between a period of 8 months, since autumn 2008, 10.000 serum obtained by blood donors in Ferrara province were collected and tested as described in previously. 70 of the 10.000 serum analyzed resulted positive in IgG. This data showing an incidence of 0.7% in a blood donors population.

*Conclusion:* After the outbreak of WNV infections in Italy during the 2008, a sero-prevalence study was performed to determine the WNV mosquitoes-related infections in a blood donors in Italy. We report the first study of human sero-prevalence in Europe involving a high number of persons. The first data of the study show an incidence of 0,7% and suggest the large diffusion of WNV in the area studied. In addition, the high incidence prospect a necessary surveillance in blood and organ donors, performed by NAAT in this part of Italy.

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**A retrospective laboratory analysis of clinically diagnosed Lassa fever cases in a tertiary hospital in Nigeria**

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*Background:* Lassa fever (LF) is associated with a wide spectrum of clinical manifestations and its clinical diagnosis is often complicated by the fact that the initial symptoms of the disease are indistinguishable from a number of other infections seen in endemic areas. Over the years, many outbreaks and deaths from LF have been reported in Nigeria mostly associated with no or inadequate laboratory testing. Consequently, the accuracy of clinical diagnosis is therefore of interest.

*Methods:* Data including blood specimens and background information were collected from 267 consented in- and out-patients clinically diagnosed to have LF at the Irrua Specialist Teaching Hospital, Nigeria. Blood specimens were tested for Lassa virus RNA using Reverse transcriptase polymerase chain reaction (RT-PCR). Data derived were analyzed using EpiInfo 6.04a version.

*Results:* Comparison of clinical diagnoses with laboratory test results showed a low specificity of clinical judgement. Of the 267 clinically diagnosed cases, LF was laboratoryconfirmed in 62 (23.2%), of which 35 (56%) were rightly treated with Ribavirin. On the other hand, 57 (28%) of the 205 LF negative patients were erroneously treated with Ribavirin. However 35 (56%) of these patients recovered, 18 (29%) died and 1(2%) was referred to another hospital for further attention. Patients that tested positive to LF were more likely to report vomiting, bleeding and have fever, sore throat, headache, abdominal pain and malaise than those that did not ($p < 0.05$).

*Conclusion:* Until now, the diagnosis of LF is mainly clinical, and was considered sufficient for treatment decision. Unfortunately, clinical diagnosis of LF by health workers is hardly achievable especially in the absence of haemorrhage. Ribavirin can only help if it is administered early in the course of illness. In the above elucidated challenge, prompt diagnosis is clearly needed for early commencement of treatment. The place of appropriate laboratory support in the effective and prompt diagnosis cannot be over-emphasized in the management of LF in all endemic countries of West Africa.

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**Syphilis among young women: a population based survey in central Brazil**

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*Background:* Syphilis remains an important public health problem worlwide, despite preventive measure and effective treatment available for decades. The evolving epidemiology, changing risk groups, and social environments present challenges for syphilis control and further elimination. Population based syphilis prevalence studies are scarce among adolescent and youth, considered a vulnerable group for sexually transmitted diseases (STD). To estimate the prevalence of syphilis in adolescents and young females, sexually active in central part of Brazil.

*Methods:* The study was a population-based cross sectional study conducted among 15 to 24 years old sexually active females attending Family Health Program (~ 14.000 families registered at FHP), in three medium sized cities (~10.650 to 75.600 inhabitants) of Goias State- Central Brazil, from 2007 to 2009. Potential participants were randomly selected from a nominal list of youth registered at local FHS. Community health agents invited the participants for an interview at the local health center. The demographic data and sexual behavior profile were investigated by confidential interview. For those sexually active, a serum sample was collected for syphilis diagnosis using two screening tests (VDRL and ELISA) followed by a confirmatory test (FTA Abs).

*Results:* 1073 participants were interviewed, among them 698 (65.0%) were sexually active. The median age of the first sexual relation was 15.9 years (dp = 2.1), 73.5% of the participants referred inconsistent condom use, and 38.8% had at least one previous pregnancy. Eleven women were positive on screening test (VDRL or ELISA) for syphilis. One sample was positive on screening and on the confirmatory test, yielding a syphilis prevalence of 0.14% (CI95% 0.00-0.79).

*Conclusion:* The overall prevalence of syphilis was lower than the expected for pregnant women and blood donors, in Brazil. However, adolescents and young women, of the evaluated cities, reported high risk sexual behavior for SDT, pointing out for the need of preventive strategies towards syphilis control and future elimination. Financial support: UNESCO and Brazilian Health Ministry

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**Clinical features of *Plasmodium malariae* in Venezuela**

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*Background:* Despite the increased mass of knowledge in different aspects of malaria, *P. malariae* is the least studied of the four species that infect humans; in part because of its low prevalence. There is evidence that *P. malariae* infections are vastly underreported. We undertook a prospective cohort study to investigate the clinical features of *P. malariae* infections in endemic areas in Venezuela.

*Methods:* National malaria parasite data per year was obtained from the national malaria surveillance system. A prospective cohort study assessing the clinical and parasitological profiles of malaria infections was conducted among patients attending the malaria post at the Centro